WHAT IS CLAIMED IS:

1. An isolated infectious recombinant respiratory syncytial virus (RSV) comprising a RSV genome or antigenome, a major nucleocapsid (N) protein, a nucleocapsid phosphoprotein (P), a large polymerase protein (L), and a RNA polymerase elongation factor, wherein a modification is introduced in the genome or antigenome comprising a partial or complete deletion of M2 ORF2 or one or more nucleotide change(s) that reduce or ablate expression of M2 ORF2.

2. The recombinant RSV of claim 1, wherein expression of M2 ORF2 is ablated by introduction of one or more stop codons.

3. The recombinant RSV of claim 2 which is rA2-K5.

4. The recombinant RSV of claim 1, wherein expression of M2 ORF2 is ablated by introduction of a frame shift mutation.

5. The recombinant RSV of claim 4 which is rA2-NdeI.

6. The recombinant RSV of claim 1, wherein M2 ORF2 is deleted in whole or in part.

7. The recombinant RSV of claim 1, wherein the modification in the genome or antigenome specifies one or more desired phenotypic changes in the recombinant RSV selected from (i) a change in mRNA synthesis, (ii) a change in the level of viral protein expression; (iii) a change in genomic or antigenomic RNA replication, (iv) a change in viral growth characteristics, (v), a change in viral plaque size, and/or (vi) a change in cytopathogenicity.

8. The recombinant RSV of claim 7, wherein the phenotypic change comprises attenuation of viral growth compared to growth of a corresponding wild-type or mutant parental RSV strain.

9. The recombinant RSV of claim 1, wherein the RSV genome comprises one or more shifted RSV gene(s) or genome segment(s) that is/are positionally shifted within genome or antigenome to a more promoter-proximal or promoter-distal position relative

to a position of said RSV gene(s) or genome segment(s) within a wild type RSV genome or antigenome.

10. The recombinant RSV of claim 9, wherein said one or more shifted gene(s) or genome segment(s) is/are shifted to a more promoter-proximal or promoter-distal position by deletion or insertion of one or more displacement polynucleotide(s) within said partial or complete genome or antigenome.

11. The recombinant RSV of claim 7, wherein the phenotypic change comprises delayed kinetics of viral mRNA synthesis compared to kinetics of mRNA synthesis of a corresponding wild-type or mutant parental RSV strain.

12. The recombinant RSV of claim 7, wherein the phenotypic change comprises a change in cumulative mRNA synthesis compared to cumulative mRNA synthesis of a corresponding wild-type or mutant parental RSV strain.

13. The recombinant RSV of claim 12, wherein the increase in cumulative viral mRNA synthesis is approximately 1.3 to 2-fold or greater at 24 hours post-infection compared to cumulative mRNA synthesis of the corresponding wild-type or mutant parental RSV strain.

14. The recombinant RSV of claim 7, wherein the phenotypic change comprises increased viral protein accumulation in infected cells compared to viral protein accumulation in cells infected with a corresponding wild-type or mutant parental RSV strain.

15. The recombinant RSV of claim 7, wherein accumulation of one or more viral proteins is increased approximately 2- to 3-fold or greater compared to viral protein accumulation in cells infected with the corresponding wild-type or mutant parental RSV strain.

16. The recombinant RSV of claim 7, wherein the phenotypic change comprises increased expression of one or more viral antigens compared to expression of said one or more viral antigens by the corresponding wild-type or mutant parental RSV strain.

17. The recombinant RSV of claim 7, wherein the phenotypic change comprises a change in viral RNA replication compared to viral RNA replication of a corresponding wild-type or mutant parental RSV strain.

18. The recombinant RSV of claim 17, wherein accumulation of genomic and antigenomic RNA is decreased compared to accumulation of genomic and antigenomic RNA of the corresponding wild-type or mutant parental RSV strain.

19. The recombinant RSV of claim 7, wherein the phenotypic change comprises an increase in cumulative mRNA synthesis and a reduction in viral RNA replication compared to cumulative mRNA synthesis and viral RNA replication of a corresponding wild-type or mutant parental RSV strain.

20. The recombinant RSV of claim 19, wherein a cumulative molar ratio of mRNA to genomic RNA is increased approximately 7- to 18-fold or greater compared to a cumulative molar ratio of mRNA to genomic RNA observed for the corresponding wild-type or mutant parental RSV strain.

21. The recombinant RSV of claim 7, wherein the phenotypic change comprises a larger plaque phenotype compared to plaque phenotype of a corresponding wild-type or mutant parental RSV strain.

22. The recombinant RSV of claim 7, wherein the phenotypic change comprises a change in cytopathogenicity compared to cytopathogenicity of a corresponding wild-type or mutant parental RSV strain.

23. The recombinant RSV of claim 1, wherein the genome or antigenome is further modified by introduction of one or more attenuating mutations identified in a biologically derived mutant human RSV.

24. The recombinant RSV of claim 23, wherein the genome or antigenome incorporates at least one and up to a full complement of attenuating mutations present within a panel of biologically derived mutant human RSV strains, said panel comprising cpts RSV 248 (ATCC VR 2450), cpts RSV 248/404 (ATCC VR 2454), cpts RSV 248/955 (ATCC VR 2453), cpts RSV 530 (ATCC VR 2452), cpts RSV 530/1009 (ATCC

VR 2451), cpts RSV 530/1030 (ATCC VR 2455), RSV B-1 cp52/2B5 (ATCC VR 2542), and RSV B-1 cp-23 (ATCC VR 2579).

25. The recombinant RSV of claim 23, wherein the genome or antigenome incorporates at least one and up to a full complement of attenuating mutations specifying an amino acid substitution at Val267 in the RSV N gene, Glu218 and/or Thr523 in the RSV F gene, Asn43, Cys319 Phe 521, Gln831, Met1169, Tyr1321 and/or His 1690 in the RSV polymerase gene L, and a nucleotide substitution in the gene-start sequence of gene M2.

26. The recombinant RSV of claim 23, wherein the genome or antigenome incorporates at least two attenuating mutations.

27. The recombinant RSV of claim 23, wherein the genome or antigenome includes at least one attenuating mutation stabilized by multiple nucleotide changes in a codon specifying the mutation.

28. The recombinant RSV of claim 1, wherein the genome or antigenome comprises an additional nucleotide modification specifying a phenotypic change selected from a change in growth characteristics, attenuation, temperature-sensitivity, cold-adaptation, plaque size, host-range restriction, antigen expression, or a change in immunogenicity.

29. The recombinant RSV of claim 28, wherein the additional nucleotide modification alters a SH, NS1, NS2, or G gene of the recombinant RSV.

30. The recombinant RSV of claim 29, wherein a SH, NS1, NS2, or G gene is deleted in whole or in part or expression of the gene is reduced or ablated by a frame shift or introduction of one or more stop codons in an open reading frame of the gene or a modification of a tranlational start site.

31. The recombinant RSV of claim 28, wherein the nucleotide modification comprises a nucleotide deletion, insertion, substitution, addition or rearrangement of a cis-acting regulatory sequence of a selected gene within the recombinant RSV genome or antigenome.

32. The recombinant RSV of claim 31, wherein a gene end (GE) signal of the NS1 or NS2 gene is modified.

33. The recombinant RSV of claim 28, wherein the nucleotide modification comprises an insertion, deletion, substitution, or rearrangement of a translational start site within the recombinant RSV genome or antigenome.

34. The recombinant RSV of claim 33, wherein the translational start site for a secreted form of the RSV G glycoprotein is ablated.

35. The recombinant RSV of claim 28, wherein the genome or antigenome is modified to encode a non-RSV molecule selected from a cytokine, a T-helper epitope, a restriction site marker, or a protein of a microbial pathogen capable of eliciting a protective immune response in a mammalian host.

36. The recombinant RSV of claim 28, wherein the genome or antigenome incorporates a gene or genome segment from parainfluenza virus (PIV).

37. The recombinant RSV of claim 36, wherein the gene or genome segment encodes a PIV HN or F glycoprotein or immunogenic domain or epitope thereof.

38. The recombinant RSV of claim 37, wherein the genome segment encodes an ectodomain or immunogenic epitope of HN or F of PIV1, PIV2, or PIV3.

39. The recombinant RSV of claim 1, wherein the genome or antigenome comprises a partial or complete RSV background genome or antigenome of a human or bovine RSV combined with a heterologous gene or genome segment of a different RSV to form a human-bovine chimeric RSV genome or antigenome.

40. The recombinant RSV of claim 39, wherein the heterologous gene or genome segment encodes a RSV F, G or SH glycoprotein or an immunogenic domain or epitope thereof.

41. The recombinant RSV of claim 39, wherein the heterologous gene or genome segment is substituted for a counterpart gene or genome segment in a partial RSV background genome or antigenome

42. The recombinant RSV of claim 39, wherein the heterologous gene or genome segment is added adjacent to or within a noncoding region of the partial or complete RSV background genome or antigenome

43. The recombinant RSV of claim 39, wherein the chimeric genome or antigenome comprises a partial or complete human RSV background genome or antigenome combined with a heterologous gene or genome segment from a bovine RSV

44. The recombinant RSV of claim 39, wherein the chimeric genome or antigenome comprises a partial or complete bovine RSV background genome or antigenome combined with a heterologous gene or genome segment from a human RSV

45. The recombinant RSV of claim 44, wherein one or more human RSV glycoprotein genes F, G and SH or a genome segment encoding a cytoplasmic domain, transmembrane domain, ectodomain or immunogenic epitope thereof is substituted for a counterpart gene or genome segment within the bovine RSV background genome or antigenome

46. The recombinant RSV of claim 45, wherein one or both human RSV glycoprotein genes F and G is substituted to replace one or both counterpart F and G glycoprotein genes in the bovine RSV background genome or antigenome.

47. The recombinant RSV of claim 46, wherein both human RSV glycoprotein genes F and G are substituted to replace counterpart F and G glycoprotein genes in the bovine RSV background genome or antigenome.

48. The recombinant RSV of claim 45, wherein the heterologous gene or genome segment is from a subgroup A or subgroup B human RSV.

49. The recombinant RSV of claim 45, wherein the human-bovine chimeric genome or antigenome incorporates antigenic determinants from both subgroup A and subgroup B human RSV.

50. The recombinant RSV of claim 1 which is a virus.

51. The recombinant RSV of claim 1 which is a subviral particle.

52. A method for stimulating the immune system of an individual to induce protection against RSV which comprises administering to the individual an immunologically sufficient amount of the recombinant RSV of claim 1 combined with a physiologically acceptable carrier.

53. The method of claim 52, wherein the recombinant RSV is administered in a dose of 10^3 to 10^7 PFU.

54. The method of claim 52, wherein the recombinant RSV is administered to the upper respiratory tract.

55. The method of claim 52, wherein the recombinant RSV is administered by spray, droplet or aerosol.

56. The method of claim 52, wherein the recombinant RSV is administered to an individual seronegative for antibodies to RSV or possessing transplacentally acquired maternal antibodies to RSV.

57. The method of claim 52, wherein the recombinant RSV is attenuated and exhibits increased antigen expression compared to growth and antigen expression of a corresponding wild-type or mutant parental RSV strain.

58. The method of claim 47, wherein the recombinant RSV elicits an immune response against human RSV A, human RSV B, or both.

59. An immunogenic composition to elicit an immune response against RSV comprising an immunologically sufficient amount of the recombinant RSV of claim 1 in a physiologically acceptable carrier.

60. The immunogenic composition of claim 62, formulated in a dose of 10^3 to 10^7 PFU.

61. The immunogenic composition of claim 59, formulated for administration to the upper respiratory tract by spray, droplet or aerosol.

62. The immunogenic composition of claim 59, wherein the recombinant RSV exhibits attenuated growth and increased antigen expression compared to growth and antigen expression of a corresponding wild-type or mutant parental RSV strain.

63. The immunogenic composition of claim 62 which elicits an immune response against human RSV A, human RSV B, or both.

64. An isolated polynucleotide molecule comprising a RSV genome or antigenome which is modified by a partial or complete deletion of M2 ORF2 or one or more nucleotide changes that reduce or ablate expression of M2 ORF2.

65. The isolated polynucleotide molecule of claim 64, wherein one or more stop codons are introduced in M2 ORF2.

66. The isolated polynucleotide molecule of claim 64, wherein a frame shift mutation is introduced in M2 ORF2.

67. The isolated polynucleotide molecule of claim 64 which incorporates NdeI or K5 mutations.

68. The isolated polynucleotide molecule of claim 64, wherein the genome or antigenome is further modified by introduction of one or more attenuating mutations identified in a biologically derived mutant human RSV wherein both human RSV glycoprotein genes F and G are substituted to replace counterpart F and G glycoprotein genes in the bovine RSV genome or antigenome.

69. The isolated polynucleotide molecule of claim 64, wherein the genome or antigenome comprises an additional nucleotide modification specifying a phenotypic change selected from a change in growth characteristics, attenuation, temperature-sensitivity, cold-adaptation, plaque size, host-range restriction, or a change in immunogenicity.

70. The isolated polynucleotide molecule of claim 69, wherein the genome or antigenome is modified by deletion of a SH, NS1, NS2, G gene in whole or in part or by introduction of a frame shift or stop codon in an open reading frame of the gene that reduces or ablates gene expression.

71. The isolated polynucleotide molecule of claim 70, wherein a SH, NS1, NS2, or G gene is deleted in whole or in part.

72. The isolated polynucleotide molecule of claim 69, wherein the nucleotide modification comprises a nucleotide deletion, insertion, addition or rearrangement of a cis-acting regulatory sequence of a selected RSV gene within the RSV genome or antigenome.

73. A method for producing an infectious attenuated RSV particle from one or more isolated polynucleotide molecules encoding said RSV, comprising:

expressing in a cell or cell-free lysate an expression vector comprising an isolated polynucleotide comprising a recombinant RSV genome or antigenome which is modified by a partial or complete deletion of M2 ORF2 or one or more nucleotide changes that reduce or ablate expression of M2 ORF2, and RSV N, P, L and RNA polymerase elongation factor proteins.

74. The method of claim 73, wherein the recombinant RSV genome or antigenome and the N, P, L and RNA polymerase elongation factor proteins are expressed by two or more different expression vectors.

75. An isolated infectious recombinant respiratory syncytial virus (RSV) comprising a RSV genome or antigenome, a major nucleocapsid (N) protein, a nucleocapsid phosphoprotein (P), a large polymerase protein (L), and a RNA polymerase elongation factor, wherein the M2-2 ORF is transposed in the genome or antigenome to a more promoter-proximal or promoter-distal position compared to a native M2-2 gene order position to up-regulate or down-regulate, respectively, expression of the M2-2 ORF, or wherein the M2-2 ORF is incorporated in the genome or antigenome as a separate gene having a gene start and gene end gene end signal to alter expression of the M2-2 ORF.

76. A method for producing one or more purified RSV protein(s) comprising the steps of:

infecting a host cell permissive of RSV infection with a recombinant RSV having a modification introduced into the genome or antigenome that comprises a M2-ORF 2 deletion or knock out mutation under conditions suitable for RSV propagation;

isolating the recombinant RSV from the host cell; and

purifying said one or more RSV protein(s) to yield a purified RSV protein sample.

77. The method for producing one or more purified RSV protein(s) according to claim 76, wherein the purified protein(s) comprises one or more viral antigen(s).

78. The method for producing one or more purified RSV protein(s) according to claim 77, wherein the purified protein(s) comprises one or more RSV F and/or G glycoprotein(s) or immunogenic domain(s) thereof.

79. The method for producing one or more purified RSV protein(s) according to claim 76, wherein the recombinant RSV expresses one or more viral protein(s) at a level that is approximately 2- to 3-fold greater than a level of expression of said one or more protein(s) by a wild-type or parental mutant RSV.

80. The method for producing one or more purified RSV protein(s) according to claim 76, wherein said one or more proteins is/are purified by chromatography using one or more immobilized antibody(ies) that specifically bind(s) to said one or more protein(s).

81. The method for producing one or more purified RSV protein(s) according to claim 76, wherein said recombinant RSV is further modified by a mutation that specifies a change to said one or more protein(s) that alters protein immunogenicity, solubility, and/or reactogenicity.

82. The method for producing one or more purified RSV protein(s) according to claim 76, wherein said purified RSV protein sample includes a purified RSV G protein.

83. The method for producing one or more purified RSV protein(s) according to claim 82, wherein the recombinant RSV is further modified by a mutation that comprises a deletion of an immunpathogenic domain located between amino acids 187 and 200 of said RSV G protein.

84. The method for producing one or more purified RSV protein(s) according to claim 76, wherein said recombinant RSV is further modified by a mutation that further increases expression of said one or more RSV proteins.

85. The method for producing one or more purified RSV protein(s) according to claim 84, wherein said mutation that further increases expression of said one or more RSV proteins includes one or more attenuating mutation(s) identified in a RSV 248/404 mutant.

86. The method for producing one or more purified RSV protein(s) according to claim 76, wherein said host cell is selected from HEp-2, FRhL-DBS2, MRC, or Vero cells.

87. An isolated infectious recombinant respiratory syncytial virus (RSV) comprising a RSV genome or antigenome, a major nucleocapsid (N) protein, a nucleocapsid phosphoprotein (P), a large polymerase protein (L), and a RNA polymerase elongation factor, wherein the genome or antigenome incorporates an amino acid substitution at Asn43 of the RSV polymerase gene L.

88. The isolated infectious recombinant RSV of claim 87, wherein Ile is substituted for Asn43.